

Notice of Allowability

Application No.

09/480,986

Examiner

Jeff Piziali

Applicant(s)

BOLOTSKI ET AL.

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment filed 25 April 2007.
2. ☒ The allowed claim(s) is/are 1, 2, 5, 7, 9, 10, 12, 13, 15 and 17-19 (renumbered as claims 1-12).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


Jeff Piziali
23 July 2007

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed (on 20 June 2007) in this application after final rejection (mailed 20 March 2007). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on 25 April 2007 has been entered.

Drawings

2. The drawings were received on 25 April 2007. These drawings are acceptable.

Allowable Subject Matter

3. Claims 1, 2, 5, 7, 9, 10, 12, 13, 15, and 17-19 (renumbered as claims 1-12) are allowed.

4. The following is an examiner's statement of reasons for allowance:

The present invention comprises a method for operating a liquid crystal display having a plurality of pixel elements. The prior art, *McKnight (US 6,144,353)* discloses a method for operating a display [Fig. 1A & 1B; 12] having a plurality of pixel elements [Fig. 2A; 106], each of the plurality of pixel elements having a pixel electrode [Fig. 2A; 108 and 104 -- i.e., at least these two "pixel electrodes" sandwich each pixel element], the method comprising: applying a single transition voltage [Fig. 2C, 151] to the pixel electrode [Fig. 2A; 108] of each of the

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plurality of pixel elements on the display during a first period of time [Fig. 2C, t_0 - t_1] within a first field time (see Column 11, Lines 49-52), wherein the single transition voltage modifies a voltage between the pixel electrode [Fig. 2A; 108] and ground (see Fig. 2B; Column 9, Lines 44-67 and Column 10, Lines 8-12) and induces liquid crystal material [Fig. 2A, "Liquid Crystal"] in each pixel element to begin a transition from a bright state [Fig. 2C, high intensity] to a dark state [Fig. 2C, low intensity]; thereafter while the liquid crystal material for each pixel element is performing the transition to the dark state [Fig. 3A; 204] in response to the application of the single transition voltage, initiating application of a first paint voltage [Fig. 3A; 206] to one pixel electrode [Fig. 2A; 104] of the plurality of pixel elements during a second period of time [Fig. 2C, t_1 - t_2] within the first field time, wherein the single transition voltage is supplied to the one pixel electrode [Fig. 2A; 104] prior to initiating application of the first paint voltage, and wherein initiating application of the first paint voltage, after the one pixel element is performing the transition to the dark state, overwrites the single transition voltage and induces liquid crystal material in the one pixel element to begin transitioning to a state associated with the first paint voltage [Fig. 2C, 154] (see Column 10, Lines 1-40); thereafter waiting a predetermined time period within the first field time; and thereafter illuminating the pixel [Fig. 3A, 210] within the first field time (see Column 11, Line 26 - Column 12, Line 47).

In this embodiment, McKnight teaches momentarily driving the display pixel elements dark [Fig. 2C, t_0 - t_1], prior to applying the paint voltage (i.e. pixel data). However, other embodiments of McKnight disclose driving the display pixel elements bright, prior to applying the paint voltage (see Figs. 7A-7C; Column 15, Line 23 - Column 16, Line 60). However, even if it is argued that McKnight teaches this bright-driving technique with insufficient specificity; ***Bonnett et al (US 6,075,506)*** discloses a single transition voltage [Fig. 2a; strobe signal S]

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inducing liquid crystal material (see Column 3, Lines 50-56) in each pixel element to begin a transition from a dark/black state to a bright/white state prior to initiating application of the first paint voltage (i.e. data signal) (see Column 4, Lines 19-30). McKnight and Bonnett are analogous art, because they are from the shared field of driving liquid crystal display devices. Therefore, it would have been obvious to one skilled in the art at the time of invention to use Bonnett's white state blanking technique with McKnight's pixel data driving method, so as to increase the grey scale capability of the display.

However, as argued by the applicants (on Pages 7-9 of the Amendment filed 125 April 2007), the prior art does not expressly teach the subject matter of each of the plurality of pixel elements having a pixel electrode and a common electrode, applying a single transition voltage to the pixel electrode and a pre-determined voltage to the common electrode of a pixel element during a first period of time, and while the liquid crystal material for the pixel element is performing the transition to the bright state in response to the application of the single transition voltage, initiating application of a first paint voltage to the pixel electrode during a second period of time within the first field time, in combination with the remaining features and subject matter of the instantly claimed invention.

This distinct structural and operational arrangement has been incorporated into all three independent claims (i.e. claims 1, 9, and 17 -- renumbered as claims 1, 5, and 10), thereby rendering them allowable.

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Any comments considered necessary by applicants must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jeff Piziali
23 July 2007